



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/734,262 | 12/11/2000 | Mitsuharu Ohki | 112857-224 | 4709 |
| 29175 | 7590 | 02/08/2006 | EXAMINER | |
| BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135 | | | LAROSE, COLIN M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2627 | |

DATE MAILED: 02/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/734,262

Applicant(s)

OHKI ET AL.

Examiner

Colin M. LaRose

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 September 2005 has been entered.

Response to Amendments and Arguments

2. Applicant's arguments with respect to claim 6 have been considered but are not persuasive for the following reasons.

Applicant argues that "Furusawa does not disclose that the weighting factors are also influenced by the distance between the pixels." However, as explained in the Advisory Action mailed 10/26/05, Furusawa is considered to disclose "weighting the pixel values of said pixels based on the distance between said pixels and the positions of the boundary line." Specifically, in column 6, lines 47-55, Furusawa teaches that the weighting factors of the filters are based on the distance between the outline of the designated area and a center pixel -- the outline of the designated area comprising pixels that lie on the boundary. As shown in figure 3, the distance from a pixel within the designated area to the boundary directly corresponds to the distance from the pixel to the contour, since the distance between the contour and the boundary is substantially equidistant ("d"). Therefore, Furusawa's weighting factors are determined based on the positions of the boundary (i.e. contour line) with respect to a given pixel.

Art Unit: 2627

As such, the distance between pixels (i.e. a “central pixel” and a pixel on the designated area outline) are utilized to determine the proper weighting factors for filtering the central pixel. “The weighting factors of the selected S/E filter may be decreased as the central pixel comes closer to the outline of the designated area” (column 6, lines 50-52) – in other words, the weighting factors for filtering the central pixel depend on the difference in location between a boundary pixel and the central pixel to be filtered.

Claim Objections

3. In view of Applicant’s amendments, the previous objections to claims 9-11 have been withdrawn.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 6-11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,050,227 by Furusawa et al. (“Furusawa”).

Regarding claim 6, Furusawa discloses an image processing apparatus (figure 1), comprising:

Art Unit: 2627

storage control means (memory 9) for controlling storage of a plurality of pixels inputted thereto (figure 2, S4: designated area of pixels, such as R1 or R2 shown in figure 3, is stored in memory);

detection means (image processor 8) for detecting a boundary line in the proximity of said pixels by comparing differences between pixel values associated with at least two of said pixels (figure 2, S6: a contour and its direction is detected using edge detection filters (e.g. figure 4), which compare the differences between pixels to ascertain the presence of a contour – see column 4, line 64 through column 5, line 55);

position calculation means (image processor 8) for calculating positions of the boundary line with respect to said pixels (i.e. in detecting a contour, Furusawa's detection means also ascertains the positions and orientations of the contour);

weighting means (image processor 8) for weighting the pixel values of said pixels based on the distance between said pixels and the positions of the boundary line calculated by said position calculation means (figure 2, S7: a smoothing/enhancing filter is selected based on the position/orientation of the contour – see figure 6; the S/E filter is also selected based on the distance between a pixel to be filtered and a pixel on the outline of the designated area – see column 6, lines 47-55;

figure 2, S8: the S/E filter is applied to the plurality of pixels to generate weighted, or filtered, pixel values;

figure 2, S9: the weighted pixel values are added to the original pixel values to produce corrected pixel values); and

Art Unit: 2627

outputting means (image processor 8) for outputting said pixels, wherein the weighted pixel values are associated with said outputted pixels (figure 2, S10: the corrected pixel values, which are associated with their respective weighted pixel values, are output to memory).

Regarding claims 7 and 8, Furusawa discloses an image processing method/program (figures 1-2), comprising:

controlling storage of a plurality of pixels inputted in a storage device (figure 2, S4: designated area of pixels, such as R1 or R2 shown in figure 3, is stored in memory);

detecting a boundary line in the proximity of said pixels by comparing differences between pixel values associated with at least two of said pixels (figure 2, S6: a contour and its direction is detected using edge detection filters (e.g. figure 4), which compare the differences between pixels to ascertain the presence of a contour – see column 4, line 64 through column 5, line 55);

calculating positions of the boundary line with respect to said pixels (i.e. in detecting a contour, Furusawa's detection means also ascertains the positions and orientations of the contour);

weighting the pixel values associated with said pixels based on the distance between said pixels and the positions of the boundary line calculated by said position calculation means (figure 2, S7: a smoothing/enhancing filter is selected based on the position/orientation of the contour – see figure 6; the S/E filter is also selected based on the distance between a pixel to be filtered and a pixel on the outline of the designated area – see column 6, lines 47-55;

figure 2, S8: the S/E filter is applied to the plurality of pixels to generate weighted, or filtered, pixel values;

Art Unit: 2627

figure 2, S9: the weighted pixel values are added to the original pixel values to produce corrected pixel values);

wherein weighting the pixel values includes blending at least two of the pixel values of said pixels (i.e. the S/E filter weights the pixels via a 3x3 (or 5x5 or 7x7) kernel filter, which blends (smoothes) pixel values along directions tangential to the contour and sharpens pixel values along directions orthogonal to the contour); and

outputting means (image processor 8) for outputting said pixels, wherein the weighted pixel values are associated with said outputted pixels (figure 2, S10: the corrected pixel values, which are associated with their respective weighted pixel values, are output to memory).

Regarding claims 9-11, Furusawa discloses the weighting means controls weighting of the pixel values of said pixels when there is no boundary line on the left-hand or right-hand sides of a noticed pixel or there is no boundary line on upper or lower sides of the noticed pixel (i.e. Furusawa's weighting means selects the proper filter weights based on whether the boundary line is vertical or horizontal – see figures 6A and 6B; see also column 6, lines 16-26: one of the filters is selected according to the direction of the contour).

Conclusion

6. This is a continuation of applicant's earlier application having the same serial number. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though

Art Unit: 2627

it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu, can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2627

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML

Group Art Unit 2627

27 January 2006



VIKKRAM BALI
PRIMARY EXAMINER